

REMARKS

Applicants' undersigned attorney thanks the Examiner for her comments. Applicants respectfully request reconsideration of this patent application, particularly in view of the above Amendment and the following remarks. Currently, Claims 1-56 are pending, with Claims 1-39 under consideration.

The present invention is directed to a thin, flexible, high capacity absorbent pad and a method of making such an absorbent pad.

Amendment to the Claims

Claims 1-39 have been examined with no claims being allowed. Applicants request cancellation of Claims 40-56. Claims 1 and 21 are currently amended, and new Claims 57-63 have been added. No new matter has been added by this amendment.

Applicants have amended Claims 1 and 21 to include the limitation of a single layer. Support for this amendment is found throughout the specification and drawings, such as in Fig. 1.

Applicants have added new Claim 57 with the limitation of the absorbent pad having a higher basis weight in a first zone than in a second zone. Support for this limitation is found on page 14, line 19 – page 15, line 2, of the specification.

Applicants have added new Claims 58 and 61 with the limitation of a wrap material encompassing the single-layer absorbent pad. Support for this limitation is found on page 17, line 23 – page 18, line 2, of the specification.

Applicants have added new Claims 59 and 62 with the limitation of the absorbent pad having edge compression between about 2726 and about 3615 gm-cm. Support for this limitation is found on page 27, line 21 – page 28, line 1, and in Table 4 on page 37 of the specification.

Applicants have added new Claims 60 and 63 with the limitation that the single-layer absorbent pad is formed to a specific shape. Support for this limitation is found on page 7, lines 6-8, and on page 13, lines 10-12, of the specification.

No additional fee is due for this Amendment because the number of independent claims has been reduced and the total number of claims has also been reduced.

Election/Restrictions

In response to the Examiner's restriction requirement, Applicants affirm election of Group I, which includes Claims 1-39.

Claim Rejections - 35 U.S.C. §102

The rejection of Claims 1-11 and 15-30 under 35 U.S.C. §102(e) as being anticipated by Lariviere et al. (U.S. Patent No. 6,515,195) is respectfully traversed, particularly in view of the above Amendment and the following remarks.

Lariviere et al. disclose an absorbent pad which may include a first absorbent layer and a second absorbent layer (Col. 2, lines 17-35). Alternatively, a single layer, namely the second absorbent layer, can form the absorbent system (Col. 4, lines 5-6). The second absorbent layer can be formed as three or four lamina or strata (Col. 8, lines 1-2, and Figs. 6a & 6b). The pad in Lariviere et al. is produced in an air-laying process (Col. 6, lines 18-19) in which a roll good is produced, as opposed to a shaped product.

For a reference to anticipate a claim, the reference must teach each and every element or limitation of the claim. Lariviere et al. do not teach each and every element or limitation of currently amended independent Claims 1 or 21. Applicants' invention as claimed in currently amended independent Claims 1 and 21 requires that the absorbent pad comprise a *single layer* including between 30 and 85 wt% superabsorbent material and between 15 and 70 wt% pulp fluff. Lariviere et al. fail to disclose a single-layer absorbent pad including between 30 and 85 wt% superabsorbent material and between 15 and 70 wt% pulp fluff, having a density greater than about 0.28 grams per cubic centimeter (g/cc) and a thickness in a range of between 0.5 and 3.0 millimeters.

Instead, Lariviere et al. disclose a *multi-layer* absorbent pad produced in an air-laying process. The absorbent material formed in the air-laying process is

wound onto a roll, rather than being formed into a specific shape. Since Lariviere et al. disclose an absorbent pad produced using an air-laying process, and fail to disclose an absorbent pad produced using an online drum former, Lariviere et al. fail to disclose an absorbent pad having all of the qualities recited in Applicants' Claims 1 and 21.

With respect to Claims 1, 10, 11, and 28-30, Applicants recite an absorbent capacity between about 14 and 40, or at least 16, or at least 18 grams 0.9 w/v% saline solution per gram of absorbent pad. Lariviere et al. disclose an absorbent pad having a capacity of at least 18 grams (Col. 1, lines 62-63). However, the capacity ranges (in grams) in Lariviere et al. reflect different measurements than the absorbent capacity ranges (in grams/gram) in the present application. Lariviere et al. measure the weight difference between a dry absorbent pad and the same absorbent pad after the pad has been saturated and any excess fluid has been removed. Applicants' absorbent capacity measurements are based on the weight difference between a dry absorbent pad and the same absorbent pad after the pad has been saturated and any excess fluid has been removed, with this difference then divided by the dry weight of the absorbent pad. Thus, a person skilled in the art recognizes that the absorbent capacity ranges recited by Applicants are considerably higher, if not exponentially higher, than the capacity ranges disclosed by Lariviere et al.

With respect to Claim 21, Applicants recite a single-layer absorbent pad wherein superabsorbent material forms a gradient within the absorbent pad. As described at page 12, line 18 – page 13, line 5, the gradient may include more superabsorbent particles (SAP) present at one end of the pad than at an opposite end of the pad, or more SAP along one surface than along an opposite surface. In contrast, Lariviere et al. disclose a multi-layer absorbent pad in which the superabsorbent material may be present in some layers and not in others. A single-layer absorbent pad with gradients of SAP, and thus gradients of density and/or basis weight, cannot be made using the methods disclosed in Lariviere et al.

For at least the reasons presented above, Applicants respectfully submit that currently amended Claims 1 and 21 are not anticipated by Lariviere et al. Because Claims 2-11 and 15-20 depend from Claim 1, and Claims 22-30 depend from

Claim 2, these claims are also not anticipated by Lariviere et al. Thus, Applicants respectfully request withdrawal of this rejection.

Claim Rejections - 35 U.S.C. §103

A. Lariviere et al. in view of Coles

The rejection of Claims 12-14 and 31-33 under 35 U.S.C. §103(a) as being unpatentable over Lariviere et al. as applied to Claims 1 and 21 above, and further in view of Coles (U.S. Patent No. 5,722,967) is respectfully traversed.

Lariviere et al. fail to disclose or suggest a single-layer absorbent pad including between 30 and 85 wt% superabsorbent material and between 15 and 70 wt% pulp fluff. Lariviere et al. further fail to disclose or suggest such an absorbent pad wherein the superabsorbent material has a gel strength of at least 0.65.

Coles discloses a sanitary napkin having shaping means, in the form of score lines and glue lines, for controlling deformation of the napkin's absorbent core upon lateral compression. The napkin may include high gel strength absorbent gelling materials having an absorbent gel strength of more than 1.2 kPa after 5 minutes. Such absorbent gel strength, measured in kPa, is the measure of pressure or force against the gel, thus representing a mechanical modulus. In contrast, the ranges of absorbent gel strength disclosed in the present invention are determined by dividing 0.9 AUL capacity by centrifuge retention capacity (CRC), which is essentially a ratio of the amount of liquid, saline, that the SAP absorbed under no pressure versus the amount of liquid that the SAP absorbed under pressure. More particularly, the gel strength in the present invention involves an absorbency under load factor which is more related to in-use performance. Although the same term "gel strength" is used in both the present application and in Coles, these terms represent completely different measurements of material properties.

Neither Lariviere et al. nor Coles, nor the combination thereof, disclose or suggest an absorbent pad including superabsorbent material having a gel strength of at least 0.65, wherein the gel strength is determined by dividing 0.9 AUL capacity by CRC.

For at least the reasons given above, Applicants respectfully submit that the teachings of Lariviere et al. in view of Coles fail to disclose or suggest Applicants' claimed invention. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

B. Lariviere et al. in view of Carr et al.

The rejection of Claim 34 under 35 U.S.C. §103(a) as being unpatentable over Lariviere et al. as applied to Claim 21 above, and further in view of Carr et al. (U.S. Patent No. 5,462,537) is respectfully traversed.

As explained above, Lariviere et al. fail to disclose or suggest a single-layer absorbent pad including between 30 and 85 wt% superabsorbent material and between 15 and 70 wt% pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad. Lariviere et al. further fail to disclose or suggest that such an absorbent pad includes more superabsorbent material at a first end than at a second end opposite the first end.

Carr et al. disclose an absorbent article including a mixture of cellulosic fibers and superabsorbent particles, wherein the absorbent article includes a layer with a higher average basis weight and a lower average density in a target area than in an end area. The target area may overlap a crotch area and a front end area, for example. However, Carr et al. fail to disclose or suggest an absorbent pad, or a method for making an absorbent pad, having a thickness in a range of between 0.5 and 3.0 millimeters. More particularly, from a central zone to either end area, the thickness and basis weight decreases, but density increases. Thus, the absorbent article is relatively thick in the central zone.

Neither Lariviere et al. nor Carr et al., alone or in combination, disclose or suggest a single-layer absorbent pad including superabsorbent material and pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad with more superabsorbent material at a first end than at a second end opposite the first end. The Examiner suggests that it would have been obvious to one of ordinary skill in the art to include more superabsorbent material in the first end of the absorbent pad of Lariviere et al., as taught by Carr et al., to create a target absorbent area for a boy. By including more superabsorbent material in the first end of the

absorbent pad of Lariviere et al., as suggested by the Examiner, a resulting absorbent pad would have more layers of superabsorbent material in the first end than in the second end.

Moreover, there is no suggestion to combine the teachings of Lariviere et al. with the teachings of Carr et al. Lariviere et al. is directed to an absorbent system having a uniform, high density. In contrast, Carr et al. is directed to an absorbent system having non-uniform density, with low density in a target area and higher density in the end areas. It would defeat the purpose of each of these references to adjust the density configuration in either reference. Thus, these references teach away from the proposed combination thereof.

Furthermore, a combination of the absorbent system of Lariviere et al. with the absorbent article of Carr et al. does not result in a single-layer absorbent pad including superabsorbent material and pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad with more superabsorbent material at a first end than at a second end opposite the first end. Instead, the combination of Lariviere et al. and Carr et al. would result in an absorbent pad having more layers of superabsorbent material in the first end than in the second end, and formed onto a roll rather than formed to a specific shape.

For at least the reasons given above, Applicants respectfully submit that the teachings of Lariviere et al. in view of Carr et al. fail to disclose or suggest Applicants' claimed invention. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

C. Lariviere et al. in view of Faulks et al.

The rejection of Claim 35 under 35 U.S.C. §103(a) as being unpatentable over Lariviere et al. as applied to Claim 21 above, and further in view of Faulks et al. (U.S. Patent No. 5,356,403) is respectfully traversed.

As explained above, Lariviere et al. fail to disclose or suggest a single-layer absorbent pad including between 30 and 85 wt% superabsorbent material and between 15 and 70 wt% pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad. Lariviere et al. further fail to disclose or suggest

that such an absorbent pad includes more superabsorbent material along a top surface than along a bottom surface.

Faulks et al. disclose an absorbent structure containing a fibrous matrix wherein the concentration of high-absorbency material decreases from a first planar surface of the matrix to an opposite planar surface, while the density of the fibrous matrix increases from the first planar surface to the opposite planar surface. However, Faulks et al. fail to disclose or suggest an absorbent pad, or a method for making an absorbent pad, having a density greater than about 0.30 grams per cubic centimeter and a thickness in a range of between 0.5 and 3.0 millimeters. More particularly, from one surface to an opposite surface, the concentration of high-absorbency material decreases, but density increases. Thus, the absorbent structure has a relatively low density on one surface and is thick enough to accommodate a low density zone and a higher density zone along the z-direction.

Neither Lariviere et al. nor Faulks et al., alone or in combination, disclose or suggest a single-layer absorbent pad including superabsorbent material and pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad with more superabsorbent material along a top surface than along a bottom surface.

The Examiner suggests that it would have been obvious to one of ordinary skill in the art to include more superabsorbent material in the top surface of the absorbent pad of Lariviere et al., as taught by Faulks et al., to create a drier body-contacting surface. By including more superabsorbent material in the top surface of the absorbent pad of Lariviere et al., as suggested by the Examiner, a resulting absorbent pad would have more layers of superabsorbent material at the top surface than at the bottom surface.

Moreover, there is no suggestion to combine the teachings of Lariviere et al. with the teachings of Faulks et al. Lariviere et al. is directed to an absorbent system having a uniform, high density. In contrast, Faulks et al. is directed to an absorbent structure having non-uniform density, with low density along a top surface and higher density along a bottom surface. It would defeat the purpose of each of

these references to adjust the density configuration in either reference. Thus, these references teach away from the proposed combination thereof.

Furthermore, a combination of the absorbent system of Lariviere et al. with the absorbent structure of Faulks et al. does not result in a single-layer absorbent pad including superabsorbent material and pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad with more superabsorbent material along a top surface than along a bottom surface. Instead, the combination of Lariviere et al. and Faulks et al. would result in an absorbent pad having more layers of superabsorbent material along the top surface than along the bottom surface, and formed onto a roll rather than formed to a specific shape.

For at least the reasons given above, Applicants respectfully submit that the teachings of Lariviere et al. in view of Faulks et al. fail to disclose or suggest Applicants' claimed invention. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

D. Lariviere et al. in view of Kellenberger et al.

The rejection of Claim 36 under 35 U.S.C. §103(a) as being unpatentable over Lariviere et al. as applied to Claim 21 above, and further in view of Kellenberger et al. (U.S. Patent No. 4,699,823) is respectfully traversed.

As explained above, Lariviere et al. fail to disclose or suggest a single-layer absorbent pad including between 30 and 85 wt% superabsorbent material and between 15 and 70 wt% pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad. Lariviere et al. further fail to disclose or suggest that such an absorbent pad includes more superabsorbent material along a bottom surface than along a top surface.

Kellenberger et al. disclose an absorbent material layer including particles of superabsorbent material distributed within the layer, with the superabsorbent particles disposed to form a substantially continuous, non-step-wise, positive concentration gradient of superabsorbent through at least a portion of the thickness of the absorbent layer. However, Kellenberger et al. fail to disclose or suggest an absorbent pad having a density greater than about 0.30 grams per cubic centimeter and a thickness in a range of between 0.5 and 3.0 millimeters. More

particularly, Kellenberger et al. disclose a density range of about 0.13-0.18 grams per cc, and indicate that fluff densities lower than about 0.13 grams per cc produce poor fluid distribution, while fluff densities greater than about 0.18 grams per cc do not further improve fluid distribution and can produce undesirable attributes.

Neither Lariviere et al. nor Kellenberger et al., alone or in combination, disclose or suggest a single-layer absorbent pad including superabsorbent material and pulp fluff, having a density greater than about 0.30 grams per cubic centimeter and a thickness in a range of between 0.5 and 3.0 millimeters, wherein the superabsorbent material forms a gradient within the absorbent pad with more superabsorbent material along a bottom surface than along a top surface.

The Examiner suggests that it would have been obvious to one of ordinary skill in the art to include more superabsorbent material in the bottom surface of the absorbent pad of Lariviere et al., as taught by Kellenberger et al., to reduce gel blocking. By including more superabsorbent material in the bottom surface of the absorbent pad of Lariviere et al., as suggested by the Examiner, a resulting absorbent pad would have more layers of superabsorbent material at the bottom surface than at the top surface.

Moreover, there is no suggestion to combine the teachings of Lariviere et al. with the teachings of Kellenberger et al. Lariviere et al. is directed to an absorbent system having a uniform, high density. In contrast, Kellenberger et al. is directed to an absorbent structure having a low density, specifically between about 0.13-0.18 grams per cc. It would defeat the purpose of each of these references to adjust the density configuration in either reference. Thus, these references teach away from the proposed combination thereof.

Furthermore, a combination of the absorbent system of Lariviere et al. with the absorbent structure of Kellenberger et al. does not result in a single-layer absorbent pad including superabsorbent material and pulp fluff, having a density greater than about 0.30 grams per cubic centimeter and a thickness in a range of between 0.5 and 3.0 millimeters, wherein the superabsorbent material forms a gradient within the absorbent pad with more superabsorbent material along a bottom surface than along a top surface. Instead, the combination of Lariviere et al. and

Kellenberger et al. would result in an absorbent pad having more layers of superabsorbent material along the bottom surface than along the top surface, and formed onto a roll rather than formed to a specific shape.

For at least the reasons given above, Applicants respectfully submit that the teachings of Lariviere et al. in view of Kellenberger et al. fail to disclose or suggest Applicants' claimed invention. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

E. Lariviere et al.

The rejection of Claims 37-39 under 35 U.S.C. §103(a) as being unpatentable over Lariviere et al. as applied to Claim 21 above is respectfully traversed.

As explained above, Lariviere et al. fail to disclose or suggest a single-layer absorbent pad including between 30 and 85 wt% superabsorbent material and between 15 and 70 wt% pulp fluff, wherein the superabsorbent material forms a gradient within the absorbent pad. Lariviere et al. further fail to disclose or suggest any range of concentration variation of a gradient within such an absorbent pad.

As further explained above, a single-layer absorbent pad with gradients of SAP, and thus gradients of density and/or basis weight, cannot be made using the methods disclosed in Lariviere et al. Since Lariviere et al. do not disclose or suggest a single-layer absorbent pad with gradients of SAP, Lariviere et al. further fail to disclose or suggest the variation of concentration of SAP within such a gradient.

For at least the reasons given above, Applicants respectfully submit that the teachings of Lariviere et al. fail to disclose or suggest Applicants' claimed invention. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Conclusion

Applicants intend to be fully responsive to the outstanding Office Action. If the Examiner detects any issue which the Examiner believes Applicants have not addressed in this response, Applicants' undersigned attorney requests a telephone interview with the Examiner.

Applicants sincerely believe that this Patent Application is now in condition for allowance and, thus, respectfully request early allowance.

Respectfully submitted,



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